



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/540,919

04/24/2007

Sung-Min Kim

Q88281

3322

23373 7590 07/02/2009
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

NGUYEN, DANNY

ART UNIT

PAPER NUMBER

2836

MAIL DATE

DELIVERY MODE

07/02/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/540,919	Applicant(s) KIM ET AL.	
	Examiner DANNY NGUYEN	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 4/16/2009 have been fully considered but they are not persuasive.

Regarding claim 1, applicant argued that Amano does not disclose the capacity of the secondary battery is about four to 100 time the capacity of the capacitor. Examiner respectfully disagrees with the applicant. Amano does disclose the capacity of the secondary battery (the battery 6) is about four to 100 time the capacity of the capacitor (the capacity of the capacitor 5 is about 2V. the battery 6 is about 36 V while the capacity of the capacitor 5 is about 2V, see col. 3, lines 45-46, col. 5, lines 53-54. Thus, the capacity of the battery 6 is 10 times more than the capacity of the capacitor 5. Therefore, the applicant's arguments with respect to claim 1 do not distinguish over the Amano reference.

Regarding claim 9, applicant argued that Ozawa fails to teach charging the storage device to a sum of an operating voltage of the capacitor and a nominal voltage of the secondary battery. Examiner respectfully does not agree with the argument. Ozawa discloses the storage device (6) includes a capacitor (5) and a secondary battery (4) coupled in series (see figure 2a), and the operating voltage of the storage device (6) is 36 V. Thus, charging the storage device to a sum of an operating voltage of the capacitor (24V) and a nominal voltage of the secondary battery (12V). As a result, the applicant's arguments with respect to claim 9 do not distinguish over the Ozawa reference. Therefore, the rejections sustain.

Abstract

2. The correction of the abstract filed 4/16/2009 is considered and entered.

Drawings

3. The correction of the drawings filed 4/16/2009 is considered and accepted.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 9 is rejected under 35 U.S.C. 102(b) as being anticipated by Ozawa (USPN 6,323,608).

Regarding claim 9, Ozawa discloses a method of charging and discharging of an electric energy storage device (6) comprises a capacitor (such as an ultracapacitor 5, see col. 5, lines 50-52), a secondary battery (4) connected in series, the method comprising

charging the storage device to a sum of an operating voltage of the capacitor and a nominal voltage of the secondary battery (such as charging the storage device to a sum of an operating voltage of the capacitor (24V) and a nominal voltage of the secondary battery (12V); and

Art Unit: 2836

discharging the capacitor to 0V or less (such as col. 5, lines 50-56).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3, 4, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakazawa in view of Amano et al (USPN 6, 861,767).

Regarding claims 1, 3, 4, Nakazawa discloses an electric energy storage device (see figure 1) comprises a capacitor (2) and a battery (1) combined in series.

Nakazawa discloses the capacitor is a double layer capacitor, but Nakazawa does not explicitly disclose the battery and a capacity of the battery and the capacitor as claimed.

Amano discloses a storage device (see figure 1) comprises a capacitor (5) and a battery (6), wherein the battery is a lead acid battery (see col. 3, lines 45-46) and a capacity of the battery is about 4-100 time of an electric capacity of the capacitor (the capacity of the capacitor 5 is about 2V. the battery 6 is about 36 V while the capacity of the capacitor 5 is about 2V, see col. 3, lines 45-46, col. 5, lines 53-54. Thus, the capacity of the batter 6 is 10 times more than the capacity of the capacitor 5, e.g. see col. 3, lines 45-46, col. 5, lines 53-54).

It would have been obvious to one of having an ordinary skill in the art at the time the invention was made to have modified the battery of Nakazawa to incorporate the lead acid battery and the capacity as disclosed by Amano in order to provide a high voltage potential, a wide temperature operating, and a simplified structure. Thereby, reducing a manufacturing cost.

Regarding claim 8, Nakazawa discloses an over-voltage preventing device (a voltage detector V, see figure 5) is connected to both end portions of the battery (2).

6. Claims 5, 7, are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakazawa in view of Amano, and further in view of Okamura (USPN 5,528,121).

Regarding claim 5, Nakazawa and Amano disclose the over-voltage preventing device comprises a voltage comparator (a voltmeter V) for comparing a predetermined voltage and an applied voltage, and a switch (SW2) but do not disclose the over-voltage preventing device comprises a switch and a resistor as claimed.

Okamura discloses a storage capacitor (see figure 3) comprises an over-voltage preventing circuit (20) comprising a voltage comparator (22) for comparing a predetermined voltage and an applied voltage, and a switch (Q1) for flowing electricity when the applied voltage exceeds the predetermined voltage, and a breeder resistor (R6) for discharging the capacitor when switch flows the electricity.

It would have been obvious to one of having an ordinary skill in the art at the time the invention was made to have modified the over-voltage preventing device of Nakazawa and Amano to incorporate the over-voltage preventing device having a

Art Unit: 2836

switch and a resistor as disclosed by Okamura in order to protect the capacitor from an over-voltage condition without interrupting an operating of the storage device.

7. Claims 10, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozawa in view of Amano et al (USPN 6, 861,767).

Regarding claims 10, 11, Ozawa discloses the capacitor is a double layer capacitor (such as ultracapacitor) , but Ozawa does not explicitly disclose the battery and a capacity of the battery and the capacitor as claimed.

Amano discloses a storage device (see figure 1) comprises a capacitor (5) and a battery (6), wherein the battery is a lead acid battery (see col. 3, lines 45-46) and a capacity of the battery is about 4-100 time of an electric capacity of the capacitor (e.g. see col. 3, lines 45-46, col. 5, lines 53-54).

It would have been obvious to one of having an ordinary skill in the art at the time the invention was made to have modified the battery of Ozawa to incorporate the lead acid battery and the capacity as disclosed by Amano in order to provide a high voltage potential, a wide temperature operating, and a simplified structure. Thereby, reducing a manufacturing cost.

8. Claims 12, 13, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozawa in view of Okamura (USPN 5,528,121).

Art Unit: 2836

Regarding claims 12, 13, 15, Ozawa discloses all limitations of claim 9 as discussed above, but Ozawa does not disclose the over-voltage preventing device as claimed.

Okamura discloses a storage capacitor (see figure 3) comprises an over-voltage preventing circuit (20) comprising a voltage comparator (22) for comparing a predetermined voltage and an applied voltage, and a switch (Q1) for flowing electricity when the applied voltage exceeds the predetermined voltage, and a breeder resistor (R6) for discharging the capacitor when switch flows the electricity.

It would have been obvious to one of having an ordinary skill in the art at the time the invention was made to have modified storage device of Ozawa to incorporate the over-voltage preventing device as disclosed by Okamura in order to protect the capacitor from an over-voltage condition without interrupting an operating of the storage device.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakazawa in view of Amano, and further in view of Matsui (USPN 5,982,050).

Regarding claim 6, Nakazawa and Amano disclose all limitations of claims 1, 4 as discussed above, but do not disclose the over-voltage preventing device including a zener as claimed.

Matsui discloses a storage device (figure 3) comprises an over-voltage preventing is coupled at both ends of the capacitor, and the over-voltage device includes a zener (16) (see figure 3).

It would have been obvious to one of having an ordinary skill in the art at the time the invention was made to have modified the over-voltage preventing device of Nakazawa and Amano to incorporate the over-voltage preventing device having a zener as disclosed by Matsui in order to protect the capacitor from the over-voltage condition with having fewer components. Therefore, reducing the size of the device.

10. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ozawa in view of Matsui (USPN 5,982,050).

Regarding claim 14, Ozawa discloses all limitations of claim 9 as discussed above, but Ozawa does not disclose the over-voltage preventing device including a zener as claimed.

Matsui discloses a storage device (figure 3) comprises an over-voltage preventing is coupled at both ends of the capacitor, and the over-voltage device includes a zener (16) (see figure 3).

It would have been obvious to one of having an ordinary skill in the art at the time the invention was made to have modified the storage of Ozawa to incorporate the over-voltage preventing device having a zener as disclosed by Matsui in order to protect the capacitor from the over-voltage condition.

11. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ozawa in view of Nakazawa.

Regarding claim 16, Ozawa discloses all limitations of claim 9 as discussed above, but Ozawa does not disclose an over-discharge preventing device as claimed.

Nakazawa discloses an over-voltage preventing device (a voltage detector V, see figure 5) is connected to both end portions of the battery (2).

It would have been obvious to one of having an ordinary skill in the art at the time the invention was made to have modified the battery of Ozawa to incorporate the over-discharge preventing device as disclosed by Nakazawa in order to protect the battery from an over-discharge condition.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANNY NGUYEN whose telephone number is (571)272-2054. The examiner can normally be reached on 8:00-4:30 M-F.

Art Unit: 2836

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MICHAEL SHERRY can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Danny Nguyen/
Primary Examiner, Art Unit 2836

Application/Control Number: 10/540,919
Art Unit: 2836

Page 11